

ENVIRONMENTAL ASSESSMENT
AND
REGULATORY IMPACT REVIEW
FOR AN
EMERGENCY RULE
TO IMPLEMENT MANAGEMENT MEASURES
IN THE ATLANTIC SHARK FISHERIES
BASED ON THE RESULTS OF THE INDEPENDENT PEER REVIEW
AND A COURT-APPROVED SETTLEMENT AGREEMENT

United States Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Highly Migratory Species Management Division

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**Emergency Rule to Implement Management Measures in the Atlantic Shark Fishery
based on the Results of the Independent Peer Review and a
Court-Approved Settlement Agreement**

**Framework Adjustment to the Fishery Management Plan for Atlantic Tunas, Swordfish,
and Sharks**

Actions: Implement the annual quotas of 1,285 metric tons (mt) dressed weight (dw) and 1,760 mt dw for the commercial large coastal and small coastal shark fisheries, respectively; suspend the regulations on ridgeback large coastal shark minimum size, season-specific quota adjustments, and counting dead discards and state landings after a Federal closure against the quotas.

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Abstract: This emergency rule establishes the commercial Atlantic large coastal shark (LCS) and small coastal shark (SCS) quotas at 1,285 mt dw and 1,760 mt dw, respectively, consistent with the terms of the settlement agreement reached between the National Marine Fisheries Service (NMFS) and Southern Offshore Fishing Association (SOFA) and other plaintiffs in December 2000. NMFS determined that the settlement agreement was appropriate because it will conserve Atlantic sharks while maintaining a sustainable fishery in the long-term; move the management process for Atlantic sharks forward through quality-controlled scientific assessment and appropriate rulemaking; and promote confidence in the management process and its underlying science. The terms of the settlement agreement included an independent review of the 1998 LCS stock assessment, which was completed in October 2001. Three of the four reviewers found that the scientific conclusions and scientific management recommendations contained in the 1998 stock assessment were not based on scientifically reasonable uses of the appropriate fisheries stock assessment techniques and the best available (at the time of the 1998 stock assessment) biological and fishery information relating to LCS. Consistent with the settlement agreement, NMFS will maintain the commercial LCS quota at the 1997 level of 1,285 mt dw and, in early 2002, will conduct a new LCS stock assessment that addresses the recommendations and comments of the reviewers. Also, as part of the settlement agreement, NMFS agreed to maintain the SCS commercial quota at the 1997 level of 1,760 mt dw. A new SCS stock assessment is also expected in early 2002. NMFS will also suspend the regulations on the ridgeback LCS minimum size, counting dead discards and state landings after Federal closures against Federal quotas, and season-specific quota adjustments for LCS and SCS pending the results of the new stock assessments.

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1.0. PURPOSE AND NEED FOR ACTION

1.1 Management History

In 1993, NMFS implemented the Fishery Management Plan (FMP) for Sharks of the Atlantic Ocean, which established three management units: large coastal sharks (LCS), small coastal sharks (SCS), and pelagic sharks. At that time, NMFS identified LCS as overfished, implemented commercial quotas for LCS and pelagic sharks, and established recreational retention limits for all sharks, consistent with the LCS rebuilding program. In June 1996, NMFS convened a Shark Evaluation Workshop (SEW) to examine the status of LCS stocks. The 1996 SEW found no clear evidence that LCS stocks were rebuilding. The 1996 SEW report concluded that ~~A~~[a]nalyse*s* indicate that recovery is more likely to occur with reductions in effective fishing mortality rate of 50% or more.[@] In response to these results, in 1997, NMFS promulgated regulations that reduced the LCS commercial quota by 50 percent to 1,285 metric tons (mt) dressed weight (dw) and the recreational retention limit to two LCS, SCS, and pelagic sharks combined per trip with an additional allowance of two Atlantic sharpnose sharks per person per trip (62 FR 16648, April 2, 1997). In this same rule, NMFS established an annual commercial quota for SCS of 1,760 mt dw. On May 2, 1997, the Southern Offshore Fishing Association (SOFA) and other commercial fishermen and dealers sued the Secretary of Commerce (Secretary) on these regulations.

In 1996, amendments to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) modified the definition of overfishing and established new provisions to halt overfishing and rebuild overfished stocks, minimize bycatch and bycatch mortality to the extent practicable, and identify and protect essential fish habitat. Accordingly, in 1997, NMFS began the process of creating a rebuilding plan for overfished highly migratory species (HMS), including LCS, consistent with the new provisions.

On February 26, 1998, by court order, Judge Steven D. Merryday of the U.S. District Court for the Middle District of Florida determined that the Secretary ~~A~~failed to conduct a proper analysis to determine the quotas' economic effect on small businesses[@] and ordered NMFS ~~A~~to undertake a rational consideration of the economic effects and potential alternatives to the 1997 quotas[@] on small businesses engaged in the Atlantic shark commercial fishery. Judge Merryday also found that the Secretary ~~A~~acted within his regulatory discretion in setting the quotas[@] and allowed NMFS to maintain the 1997 quotas pending further order of the court. NMFS released its final economic consideration on May 20, 1998.

In June 1998, NMFS held another SEW in preparation for the rebuilding plan required under the Magnuson-Stevens Act amendments. The 1998 SEW found that LCS were overfished and would not rebuild under current harvest levels.

In April 1999, NMFS published the final Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks (HMS FMP), which included numerous measures to rebuild or prevent overfishing of Atlantic sharks in commercial and recreational fisheries. The HMS FMP reduced commercial LCS and SCS quotas, established ridgeback and non-ridgeback subgroups of LCS,

implemented a minimum size for ridgeback LCS, reduced the non-ridgeback LCS commercial quota, established a commercial quota for blue sharks, established a species-specific quota for porbeagle sharks and reduced the pelagic shark commercial quota accordingly, reduced recreational retention limits for all sharks, expanded the list of prohibited shark species, implemented limited access in commercial fisheries, established new procedures for counting dead discards and state landings of sharks after Federal fishing season closures against Federal quotas, and established season-specific overharvest/underharvest adjustment procedures. The HMS FMP replaced the 1993 Shark FMP. The implementing regulations were published on May 28, 1999 (64 FR 29090). On June 25, 1999, SOFA *et al.* sued NMFS again, this time challenging the Atlantic shark commercial measures implemented in the HMS FMP.

On June 30, 1999, NMFS received a court order from Judge Merryday relative to the May 1997 lawsuit. Specifically, the order enjoined NMFS from enforcing the 1999 regulations with respect to Atlantic shark commercial catch quotas and fish-counting methods (including the counting of dead discards and state commercial landings after Federal closures) that are different from the quotas and fish counting methods prescribed by the 1997 Atlantic shark regulations. A year later, on June 12, 2000, NMFS received a Court Order from Judge Merryday clarifying that NMFS could proceed with implementation and enforcement of the 1999 prohibited species provisions in 64 Fed. Reg. 29090 (May 28, 1999).

1.2 The Settlement Agreement with SOFA *et al.*

Judge Merryday first ordered the parties to settlement mediation on June 26, 1997. Settlement discussion continued intermittently through November 2000. On November 21, 2000, SOFA *et al.* and NMFS reached a settlement agreement that would dismiss both lawsuits. On December 7, 2000, Judge Merryday entered an order approving the settlement agreement. The terms of the settlement agreement specified several actions to be taken by the plaintiffs and by NMFS. NMFS implemented some of the terms of the settlement agreement via an emergency rule (March 6, 2001, 65 FR 13441). That emergency rule expired on September 4, 2001.

The settlement agreement also required an independent (i.e. non-NMFS) review of the 1998 LCS stock assessment. The original settlement agreement determined that the Center for Independent Experts (CIE) would conduct the peer review. In May 2001, the CIE transmitted three peer reviews of the 1998 LCS stock assessment to NMFS. Upon examination, NMFS determined that the three peer reviews conducted by the CIE did not conform to the terms of the settlement agreement and therefore were not complete.

Due to these irregularities, in July 2001, NMFS and the plaintiffs revised certain sections of the settlement agreement. The revisions allowed for the Natural Resources Consultants, Inc. (NRC) to conduct a second peer review. While the CIE could complete the reviews following the terms of the original settlement agreement, the NRC reviews were the deciding set of reviews in terms of the settlement agreement. Both sets of reviews can be used for the next stock assessment. The revised settlement agreement also calls for the LCS and SCS stock assessments to be completed by April 1, 2002.

The terms of the revised settlement agreement stipulated that NRC would select independent scientists with expertise in international fisheries on HMS, shark population dynamics/life history, and methods of stock assessment in situations of incomplete data and that each reviewer would make one overall statement as to whether the scientific conclusions and scientific management recommendations contained in the 1998 SEW Report are based on scientifically reasonable uses of appropriate fisheries stock assessment techniques and the best available biological and fishery information relating to LCS@.

NMFS received the results of the complete peer reviews in October, 2001. Three of the four NRC reviewers found that the scientific conclusions and scientific management recommendations contained in the 1998 SEW report *were not* based on scientifically reasonable uses of appropriate fisheries stock assessment techniques and the best available biological fishery information relating to LCS. The settlement agreement stated that in this case, NMFS will take the appropriate action to maintain the 1997 LCS quota and catch accounting/monitoring procedures, pending a new LCS stock assessment. The new LCS stock assessment will consider the recommendations of the reviewers and will be finished in early 2002. The new LCS stock assessment will also be independently peer reviewed. NMFS believes that in this case the independent reviews served as an important quality-control mechanism by which NMFS, plaintiffs, and members of the public were assured that the best available scientific information and techniques will form the basis for future shark management actions.

Additionally, per the settlement agreement, NMFS will maintain the 1997 commercial quota level of 1,760 mt dw for SCS pending completion of a new stock assessment. Upon completion of a new stock assessment, NMFS may enter into rulemaking to implement the commercial SCS quota level adopted in the HMS FMP, or take other necessary and appropriate action to conserve SCS while maintaining a sustainable fishery in the long-term, as necessary. The settlement agreement did not address any regulations affecting the pelagic shark, prohibited species, or recreational shark fisheries.

1.3 Other Litigation Related to Atlantic Sharks

NMFS has also been sued by another commercial fishing industry group, a recreational fishing group, and environmental constituent groups regarding the Atlantic shark fishery. In 1999, Bluewater Fisherman's Association sued NMFS regarding the pelagic shark management measures adopted in the HMS FMP. On September 25, 2000, Judge Roberts of the United States District Court for the District of Columbia dismissed the case and stated that the regulations were consistent with the Magnuson-Stevens Act and the Regulatory Flexibility Act. On January 1, 2001, the pelagic shark quotas adopted in the HMS FMP were implemented (66 FR 55).

In 1999, the Recreational Fishing Alliance sued NMFS regarding the recreational shark regulations adopted in the HMS FMP. On September 20, 2001, Judge Roberts of the United States District Court for the District of Columbia dismissed the case and stated that the recreational retention limits are consistent with the Magnuson-Stevens Act.

In 2001, National Audubon Society and the Ocean Conservancy sued NMFS regarding the

opening of the second 2001 LCS fishing semi-annual season and the March 6, 2001, emergency rule under the settlement agreement. This case is still pending.

1.4 Need for Action and Objectives

As a result of the June 30, 1999, court order enjoining the HMS FMP commercial shark regulations, NMFS was unable to manage Atlantic shark fisheries in a manner consistent with the Magnuson-Stevens Act or the HMS FMP and its regulations. NMFS entered into the settlement agreement with SOFA *et al.* because it enables the management process to move forward by addressing the issues that initially prompted litigation and by resolving the current litigation proceedings. The benefits of furthering the management process include increased quality control of scientific data and techniques, production of new LCS and SCS stock assessments, and potential new rulemaking based on the best available scientific information in 2002, as appropriate. If settlement had not been reached, the SOFA *et al.* lawsuits would have continued for an undetermined length of time and the management process would remain mired in litigation potentially contributing to further decline of the stocks.

NMFS acknowledges that for the duration of this emergency rule, and potentially longer until a new stock assessment is completed, the available commercial LCS and SCS quotas will remain higher than those adopted in the HMS FMP. However, based on the results of the independent peer review, NMFS no longer believes that the projections of the 1998 SEW models constitute the best available science. At this point, NMFS believes a combination of the current data (e.g. landings, discards, biological) and catch rates, the 1996 LCS SEW, and the peer reviews constitute the best available science. As a result, some of the management measures adopted in the HMS FMP that were based on the 1998 LCS SEW models are not appropriate at this time. Once a new LCS stock assessment is conducted and peer reviewed, NMFS will proceed with proposed and final rules to ensure any additional appropriate management measures based on this new information are in place to conserve the LCS stocks and its fishery.

At this time, SCS are not considered overfished and thus, maintaining higher commercial quota levels pending a new stock assessment should not result in significant risk of overfishing. This is especially true given that fishermen have never reached even the lower quota level established in the HMS FMP.

These emergency regulations are necessary because, since the court injunction was vacated per the settlement agreement, the requirements of the HMS FMP and its implementing regulations pertaining to LCS and SCS fisheries are in effect. Without this emergency rule, the lower 1999 LCS and SCS commercial quotas of 816 mt dw and 329 mt dw, respectively, and the catch accounting/monitoring procedures adopted in the HMS FMP would remain in effect pending completion of a new stock assessment, contrary to the settlement agreement, the peer reviews, and the results of the 1996 SEW. This emergency rule will ensure that the regulations in effect are consistent with the settlement agreement and the best available science.

NMFS has the authority under section 305(c) of the Magnuson-Stevens Act and under the provisions of the HMS FMP framework to implement emergency rules. An emergency rule, as

opposed to a proposed and final rule, is appropriate under the policy guidelines for the use of emergency rules (August 27, 1997, 62 FR 44421). According to this policy, emergency regulations are limited to certain situations including those where substantial harm to or disruption of the resource, fishery, or community would be caused in the time it would take to follow standard rulemaking procedures. In this case, the peer reviews required by the settlement agreement were not deemed complete and released to NMFS employees until the last week of October, 2001 (public release occurred on November 5, 2001). In the two months allotted, NMFS did not have sufficient time to prepare a proposed and final rule with an adequate public comment period before the start of the next fishing season (January 1, 2002). As these regulations must be in place on January 1, 2002, in order to prevent substantial harm to the fishing industry and related communities, NMFS has good cause to implement emergency regulations. NMFS plans to issue a proposed rule after completion of the next stock assessment. Releasing the proposed rule at that time will allow for an adequate public comment period and will address any issues to arise from the stock assessment or during the comment period on this emergency rule.

NMFS has three objectives in implementing this emergency rule:

1. Conserve Atlantic sharks while maintaining a sustainable fishery in the long-term;
2. Move the management process for Atlantic sharks forward through quality-controlled scientific assessment and appropriate rulemaking; and,
3. Promote confidence in the management process and its underlying science.

All plaintiffs (commercial, recreational, and environmental) and NMFS do not dispute that maintaining a sustainable fishery in the long-term is a desired and legally mandated outcome. Differences in opinion revolve around the adequacy of available data, modeling techniques, and the scientific basis for management measures. To that end, NMFS believes that using the results of the independent peer review will improve the science upon which shark management is based and will promote confidence in the management process and its underlying science.

2.0 SUMMARY OF THE ALTERNATIVES

2.1 Alternatives analyzed

Alternative 1 (Preferred action; status quo):

Establish a LCS commercial annual quota of 1,285 mt dw and establish a SCS commercial annual quota of 1,760 mt dw.

This alternative would maintain the 1997 quota levels for LCS and SCS sharks, pending new stock assessments. Once each stock assessment is complete, NMFS would proceed with the appropriate rulemaking action to ensure the stocks and the fisheries are conserved.

Alternative 2 (Preferred action):

Suspend the regulation on the ridgeback LCS minimum size; suspend the regulation on counting dead discards and state landings after Federal closures against Federal quotas;

suspend the regulation on season-specific quota adjustments for LCS and SCS; establish a regulation that adjusts the LCS or SCS quota based on the previous season's landings; and maintain the regulation on season-specific quota adjustments for pelagic sharks.

This alternative would maintain most of the commercial shark management measures until the new stock assessments are complete. This alternative also adjusts the regulations regarding LCS and SCS semiannual quota adjustments. Once the stock assessments are complete, NMFS would proceed with the appropriate rulemaking action to ensure the stocks and the fisheries are conserved.

Alternative 3 (Preferred action; status quo):

Maintain the recreational retention limit of one shark per vessel per trip with a minimum size of 137 cm (54") fork length plus one Atlantic sharpnose shark per person per trip with no minimum size.

This alternative would maintain the recreational retention limit pending new stock assessments.

Alternative 4 (Not Selected):

Establish a LCS commercial annual quota of 620 mt dw and 196 mt dw for ridgeback and non-ridgeback sharks, respectively, and establish a SCS commercial annual quota of 359 mt dw.

This alternative would decrease the LCS and SCS quotas, consistent with the HMS FMP, pending a new stock assessment.

Alternative 5 (Not Selected):

Implement the regulations on ridgeback LCS minimum size, counting dead discards and state landings after Federal closures against Federal quotas, and season-specific quota adjustments for LCS and SCS.

This alternative would implement other more restrictive non-quota measures, consistent with the HMS FMP, that some of the reviewers found to be appropriate.

Alternative 6 (Not Selected):

Establish a recreational bag limit of two sharks per vessel per trip plus two Atlantic sharpnose sharks per trip.

This alternative would relax the recreational retention limit, consistent with pre-HMS FMP regulations, in the recreational fishery.

Alternative 7 (Not Selected):

Maintain the recreational retention limit of one shark per vessel per trip plus one Atlantic sharpnose shark per person per trip and suspend any minimum size.

This alternative would maintain the current recreational retention limit but would suspend the current minimum size limit.

2.2 Alternatives considered but not analyzed in detail

Alternative 8:

Establish a LCS commercial annual quota of 2,570 mt dw; suspend the SCS commercial annual quota of 1,760 mt dw; establish a recreational retention limit of five SCS per person per day and four LCS and pelagic sharks per vessel per trip; suspend the regulation on the ridgeback LCS minimum size; suspend the regulation on counting dead discards and state landings after Federal closures against Federal quotas; and suspend the regulation on season-specific quota adjustments for LCS and SCS.

This alternative would implement the commercial regulations for LCS and SCS and the recreational retention limits that were in place in 1996. While these were the regulations in place before the industry sued NMFS, the 1996 SEW report found that fishing mortality on LCS should be reduced by 50 percent in order to maintain the status of the stock. Because of the results of the independent peer review, the 1996 SEW, current landings and catch rate data, and the peer reviews themselves are part of the best available science before the agency. While the reviewers did not review the 1996 SEW, some of the reviewers noted that the models used in the 1996 SEW were appropriate for Atlantic sharks. Also, while not all the reviewers agreed that a quota reduction on the magnitude in the HMS FMP was necessary in the LCS fishery, none of the reviewers suggested increasing the quota or increasing the recreational retention limits. Additionally, the reduced quota level of 1,285 mt dw for LCS and the quota level of 1,760 mt dw for SCS was upheld by the court and, finally, this alternative is contrary to the settlement agreement. Thus, while NMFS briefly considered this alternative, NMFS determined this alternative is not appropriate for the maintaining a sustainable fishery before fully analyzing its ecological, social, and economic impacts.

Alternative 9:

Establish a single pelagic shark quota of 580 mt dw.

This alternative would implement the pre-HMS FMP pelagic shark quota, pending a new stock assessment. The current quotas, established in the HMS FMP, are 273 mt dw for blue sharks, 92 mt dw for porbeagle sharks, and 488 mt dw for all other pelagic sharks. While the current quotas were established in the HMS FMP, these quotas were not based on the modeling results of the 1998 LCS SEW. Rather, these quotas were based, in part, on landings and discard information presented at the 1998 LCS SEW and the 1996 LCS SEW. These data indicate that while few pelagic sharks are landed, large numbers of blue sharks are discarded dead in the pelagic longline fishery. Additionally, historical evidence indicates that porbeagle sharks are highly susceptible to overfishing. Thus, in order to more closely monitor the porbeagle fishery and to create an incentive to prevent dead discards of blue sharks, NMFS split the 1997 pelagic shark quota into two parts (porbeagle and other) and added a blue shark quota. NMFS has decided it is appropriate to maintain these pelagic shark quotas because (1) these decisions were not based on the modeling projections that were found unreliable by a majority of reviewers; (2) the current quotas were established to create more species-specific management and to create an incentive for fishermen to reduce dead discards of blue sharks; and (3) a court (BWFA v. Mineta, September 5, 2000) has already agreed that these quotas are consistent with the Magnuson-Stevens Act. While returning to the 1997 quota level of 580 mt dw would not

effectively change the amount of sharks landed (generally less than 1 mt dw of blue sharks are landed), this quota level would be contrary to the National Standards and the goals of the HMS FMP regarding reducing bycatch and bycatch mortality. Additionally, returning to the pre-HMS FMP quota would require ignoring the recommendations of the reviewers that management be more species-specific.

Alternative 10:

Close the commercial LCS and SCS fisheries pending the results of the new stock assessments.

This alternative would prohibit commercial fishing for LCS and SCS until the new stock assessments are complete. While NMFS acknowledges the current lack of information regarding the status of either LCS or SCS, NMFS does not feel this action is appropriate. According to the 1996 SEW, the LCS quota level that has been in effect since 1997 (1,285 mt dw) can reasonably be expected to maintain the status of the stock. Additionally, the last stock assessment for SCS in 1992 found that SCS were fully fished. While fishermen are catching more SCS than they did at the time of this stock assessment, neither the HMS FMP nor the 1997 SCS quota level has been approached. Thus, NMFS feels that the continuation of the LCS and SCS fisheries until the results of the new stock assessments are known will not cause irreparable harm to the stock or the fishery. Closing these fisheries could cause severe economic hardship for fishermen and industries that rely on these species contrary to the requirements of the Magnuson-Stevens Act or the Regulatory Flexibility Act. Additionally, this alternative is contrary to the settlement agreement.

Alternative 11:

Close the recreational shark fisheries pending the results of the new stock assessments.

Similar to Alternative 9 above, this alternative would prohibit recreational fishing for any Atlantic shark until the new stock assessments are complete. While NMFS acknowledges uncertainty regarding the status of LCS, SCS, or pelagic sharks, NMFS does not believe this action is appropriate. The 1996 SEW determined that a 50 percent reduction in fishing mortality would be enough to stabilize the LCS stocks until a rebuilding plan could be developed. The actions taken since the 1996 SEW should have reduced the fishing mortality by recreational and commercial fishermen by 50 percent, thus stabilizing the stocks. Thus, NMFS believes that the continuation of the Atlantic shark recreational fishery pending the results of the new stock assessment will not cause irreparable harm to the stock or the fishery while closure of the fishery could cause severe economic hardship to industries that rely on recreational shark fishing.

3.0 AFFECTED ENVIRONMENT

Sharks, skates, and rays comprise the subclass Elasmobranchs, and together with chimaeras, comprise the class Chondrichthyes, or cartilaginous fishes. This diverse group of fishes can be distinguished by the possession of a cartilaginous skeleton as opposed to the bony skeleton of the class Osteichthyes, or bony fishes. The great majority of commercially and recreationally important species of chondrichthyans are elasmobranchs. Elasmobranchs are primarily at the top of the food web, often top-level carnivores, and their abundance is relatively small compared to

groups in lower trophic levels. The life-history characteristics of many elasmobranchs, such as late age of maturity and relatively slow growth rates, make them more susceptible to overfishing than most bony fishes. Recovery of populations from severe depletions (caused either by natural phenomena or human-induced mortality) can take many years for elasmobranch species.

Detailed descriptions of the life histories and population status of highly migratory species (HMS) species can be found in the HMS FMP and the 2001 Stock Assessment and Fishery Evaluation for Atlantic HMS (SAFE report).

3.1 Large Coastal Sharks

The 1993 Atlantic Shark FMP concluded that LCS were overfished, that pelagic sharks and SCS were fully fished, and that stock recovery to levels of the 1970s would be slow due to the relatively low intrinsic rates of increase exhibited by these species. The most recent SEW for LCS in June 1998 found that when LCS were considered as an aggregate, the results were considerably more pessimistic than when the analyses considered sandbar and blacktip sharks separately. The mean estimates for LCS in the aggregate indicate a slowing of the decrease in stock size in recent years whereas the means for sandbar sharks show stabilization and perhaps an increase in recent years. Variability in the blacktip shark results dominates any signal from these analyses. However, the independent peer reviews completed in October 2001 determined that the scientific conclusions and scientific management recommendations contained in the 1998 LCS stock assessment were not based on scientifically reasonable uses of the appropriate fisheries stock assessment techniques and the best available (at the time of the 1998 LCS stock assessment) biological and fishery information relating to LCS. Thus, NMFS believes that the models of the 1996 SEW, not the 1998 SEW, are now part of the best available science. According to the 1996 SEW, the 1997 quota levels were likely to at least maintain the stocks until a rebuilding plan could be implemented.

Directed commercial longline fishing vessels currently catch primarily sandbar and blacktip sharks. Sandbar and blacktip sharks make up approximately 60 to 75 percent of the commercial catch and approximately 75 to 95 percent of the commercial landings (GSAFDF, 1996). The remainder of the catch is comprised mostly of dusky, bull, bignose, tiger, sand tiger, lemon, spinner, scalloped hammerhead and great hammerhead sharks, with catch composition varying by region. These species are less marketable and are often released, so they are reflected in the overall catch but not the landings.

3.2 Small Coastal Sharks

Small coastal sharks are targeted in localized fisheries in the southern United States, caught incidentally in other commercial fisheries, and are commonly used for bait. Small coastal sharks are also commonly encountered in recreational fisheries in the southern United States. NMFS has not conducted an evaluation of SCS stock status since the 1993 Shark FMP, primarily due to the lack of sufficient catch per unit effort time series. However, NMFS is currently preparing to conduct a SCS stock assessment and anticipates completion of the assessment in early 2002.

Species-specific fishery independent catch rate data only exist for Atlantic sharpnose and bonnethead sharks. Atlantic sharpnose shark catch rate data, which dominate the SCS catch rate information, appear to be relatively stable, with a slightly increasing trend in the early 1990s and a slightly decreasing trend since 1995. Bonnethead shark catch rate data (one extensive time series) exhibit strongly cyclical and decreasing trends from the early 1970s to the early 1980s, and a low but relatively stable trend since the early 1980s.

3.3 Pelagic Sharks

Pelagic sharks are often caught in pelagic longline fisheries in the northern United States and also in recreational fisheries and tournaments. NMFS has not conducted an evaluation of pelagic shark stock status since the 1993 Shark FMP because many of these species are truly migratory and are caught outside the U.S. Economic Exclusive Zone (EEZ) by international fleets including Canada and Japan. However, the International Commission for the Conservation of Atlantic Tunas (ICCAT) is planning on conducting an international stock assessment in 2003-2004. Biological and fishing data are currently being compiled for this assessment.

Shortfin mako and thresher sharks are most commonly landed by commercial fleets, however blue sharks are often caught and discarded either dead or alive. Blue sharks, shortfin mako, and thresher sharks are also the most popular recreational species.

3.3 Protected Species

The June 14, 2001, Biological Opinion that analyzed the impacts of shark fisheries on listed marine mammals and sea turtles took into account for the higher quota levels and concluded that the southeast drift gillnet fishery for sharks, the bottom longline fishery, handgear fishery, and rod and reel fisheries may adversely affect but are not likely to jeopardize the continued existence of the right whale, humpback, fin, or sperm whales, or Kemp's ridley, green, loggerhead, hawksbill, or leatherback sea turtles. While the June 14, 2001, Biological Opinion did find that the continued operation of the Atlantic pelagic longline fishery is likely to jeopardize the continued existence of the leatherback and loggerhead sea turtles, pelagic longline gear is generally not used to target LCS or SCS and NMFS has implemented an emergency rule to establish the Reasonable and Prudent Alternative outlined in the Biological Opinion. Rulemaking to comply with all measures in the Biological Opinion is underway. Accordingly, this action to re-establish 1997 commercial quota levels and catch accounting/monitoring procedures for LCS and SCS pending new stock assessments does not affect listed species in ways not previously analyzed.

4.0 DESCRIPTION OF ATLANTIC SHARK FISHERIES

Commercial fishermen use a number of gear types to target sharks, including bottom longline, pelagic longline, drift gillnet, and rod and reel. Other gear types such as shrimp trawls catch sharks incidentally. All of these gears catch many species of fish; some of those captured are marketable and thus are retained, while others are discarded for economic or regulatory reasons. Species encountered are snappers, groupers, red drum, cobia/dolphin, swordfish, tunas, billfish, wahoo, king and Spanish mackerel, little tunny, crevalle jack, and other finfish species.

Sometimes fishermen also catch sea turtles, marine mammals, and sea birds, known collectively as **protected species**. All of these species are Federally managed, and NMFS seeks to control the mortality that results from fishing effort.

Below is a brief description of Atlantic shark fisheries. Please refer to section 2.4 and 2.5 of the HMS FMP and section 4.5 of the 2001 SAFE report for more detailed descriptions. Additional information specific to the pelagic longline fishery can be found in the Final Supplemental Environmental Impact Statement for the reduction of bycatch, bycatch mortality, and incidental catch in the Atlantic pelagic longline fishery and in the Environmental Assessment and Regulatory Impact Review to reduce sea turtle bycatch and bycatch mortality in the Atlantic pelagic longline fishery or in the June 14, 2001, Biological Opinion.

4.1 Bottom Longline Fishery

The Atlantic bottom longline fishery targets LCS, with landings dominated by sandbar and blacktip sharks. Gear characteristics vary slightly by region, but in general, a ten-mile long monofilament bottom longline, containing about 750 hooks, is fished overnight. Skates, sharks, or various finfishes are used as bait (GSAFDF, 1997). The gear typically consists of a heavy monofilament mainline with lighter weight monofilament gangions. Some fishermen may occasionally use a flexible 1/16 inch wire rope as gangion material or as a short leader above the hook.

Commercial shark fishing effort with bottom longline gear is concentrated in the southeastern United States and Gulf of Mexico. McHugh and Murray (1997) found in a survey of shark fishery participants that the largest concentration of bottom longline fishing vessels is found along the central Gulf coast of Florida, with the John's Pass - Madeira Beach area considered the center of directed shark fishing activities. Average bottom longline sets generally last between 10.1 and 14.9 hours, with longer sets typical of the North Carolina and Florida Gulf fisheries and shorter sets typical of the South Carolina/Georgia fishery (GSAFDF, 1997). As with all HMS fisheries, some shark fishery participants move from their home ports to active fishing areas as the seasons change.

Sandbar and blacktip sharks dominated catches of LCS. Depending on region and year, these species constituted 60 to 75 percent of the catch and 75 to 95 percent of the landings during the period 1994 to 1996 (GSAFDF, 1996 and 1997). Tiger sharks were the third-most common LCS caught during the three-year period. However, the tiger shark has little market value and is usually discarded; a few were landed, and some small individuals were used as bait. Other species, such as dusky, bull, and lemon sharks were found to be of local importance. Five species (sandbar, blacktip, dusky, bull, and lemon sharks) constituted 95 percent of the landings. Vessels operating in the South Atlantic Bight caught and landed a greater diversity of species than other regions.

4.2 Pelagic Longline Fishery

The U.S. pelagic longline fishery for Atlantic HMS primarily targets swordfish, yellowfin tuna, or bigeye tuna in various areas and seasons and catches sharks incidentally. Although this gear

can be modified (i.e., depth of set, hook type, etc.) to target swordfish, tuna or sharks, like other hook and line fisheries, it is a multi-species fishery. Longline gear sometimes attracts and hooks non-target finfish with no commercial value, as well as species that cannot be retained by commercial fishermen, such as billfish or some species of sharks. Pelagic longlines may also interact with protected species such as marine mammals, sea turtles and sea birds.

Pelagic longline gear is composed of several parts. The primary mainline can vary from five to 40 miles in length, with approximately 20 to 30 hooks per mile. The depth of the mainline is determined by ocean currents and the length of the floatline, which connects the mainline to several buoys and periodic markers with radar reflectors and radio beacons. Lightsticks, which contain chemicals that emit a glowing light, are often used to attract bait fish which may, in turn, attract pelagic predators. When targeting swordfish, the lines generally are deployed at sunset and hauled in at sunrise to take advantage of the nocturnal near-surface feeding habits of the large pelagic species (Berkeley *et al.*, 1981). In general, longlines targeting tuna are set in the morning, deeper in the water column, and hauled in the evening. Except for vessels of the distant water fleet which undertake extended trips, fishing vessels preferentially target swordfish during periods when the moon is full to take advantage of increased densities of pelagic species near the surface.

Several species of large coastal (dusky, silky, hammerhead, and night) and pelagic sharks (mako, thresher, porbeagle and blue) are frequently caught in pelagic longline fisheries; some are retained due to high fin and meat market value, others are reported as discarded (dead or alive). Based on pelagic logbook data, in 1996, approximately 360 mt dw of LCS (primarily sandbar and blacktip sharks) and 200 mt dw of pelagic sharks (primarily mako) were landed, whereas approximately 64 mt whole weight (ww) of LCS (primarily dusky, silky, and unidentified sharks) and 840 mt ww of pelagic sharks (primarily blue sharks) were discarded dead in pelagic longline fisheries (Cramer *et al.*, 1997).

4.3 Drift Gillnet Fishery

The southeast shark drift gillnet fishery is comprised of about 6 vessels that used nets typically 91 to 2,736 meters long and 3 to 14 meters deep, with stretched mesh from 12.7 to 24.4 cm (Carlson and Baremore, 2001). The entire process (time net was first set minus the time the haulback was completed) averaged 9.0 hours in 2001 (Carlson and Baremore, 2001). A total of 37 driftnet sets were observed from April to October in 2000 and 2001 combined. The observed driftnet catch consisted of 10 shark species (Atlantic sharpnose, blacknose, and blacktip comprised 97 percent of the catch), 25 teleosts and rays, and 1 species of sea turtle (Carlson and Baremore, 2001). Shark fishermen also use drift gillnet gear in a strikenet fashion. This can be done with a small second vessel actively setting the net around a school of sharks or the driftnet vessel actively setting the net in the wake of a shrimp vessel. Vessels fishing in a strikenet fashion used nets between 46 and 730 meters long, 9 and 24 meters deep, and with mesh sizes 23 to 25 cm (Carlson and Baremore, 2001). A total of eight strikenet sets were observed in August to September 2000 and 2001 combined. Four species of shark (blacknose, blacktip, spinner, and finetooth) and one species of ray was observed caught (Carlson and Baremore, 2001). Legislation in South Carolina, Georgia, and Florida has prohibited the use of commercial gillnets in state waters, thereby forcing some of these vessels into deeper waters under Federal

jurisdiction, where gillnets are less effective.

4.4 Rod and Reel Fishery

Rod and reel fishing for sharks occurs in both commercial and recreational fisheries. Commercial rod and reel landings are a minor component of commercial shark landings. Recreational shark fishing with rod and reel is a popular sport at all social and economic levels, largely because of accessibility to the resource. Sharks can be caught virtually anywhere in salt water, with even large specimens available in the nearshore area to surf anglers or small boaters. Most recreational shark fishing takes place from small to medium-size vessels. Makos, white sharks, and large pelagic sharks are generally accessible only to those aboard ocean-going vessels. Recreational shark fisheries are exploited primarily by private vessels and charter/headboats although there are some shore-based fishermen in the Florida Keys as well as offshore tournament fishing. Shark tournament fishing is usually conducted from vessels that vary in size from small outboards to sportfishing yachts of 15 meters or longer. Some tournaments encourage catch and release fishing by offering prize points for released sharks.

Charter vessel fishing for sharks is also popular. In most U.S. waters, this type of fishing occurs from May to September. In some regions, certain species are heavily targeted, e.g., sharpnose and blacktip in the Carolinas, and makos and large white sharks at Montauk, NY. Many charter vessels also fish for sharks out of ports in Ocean City, MD and Wachapreague, VA. Headboats may land the smaller shark species, but they usually do not target sharks specifically, except for a headboat fishery for sharpnose sharks based in Port Aransas, TX.

5.0 ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES CONSIDERED

Until the results of new stock assessments for LCS and SCS are known, and, possibly, until the new LCS stock assessment has been independently peer reviewed, NMFS is implementing an emergency rule. These regulations only apply to fishermen on vessels that have been issued Federal Atlantic limited access shark permits or those anglers that are fishing for sharks recreationally in the U.S. EEZ. NMFS has considered a range of alternatives in developing this emergency rule; the environmental consequences of each are described below.

Alternative 1 (Preferred action; status quo):

Establish a LCS commercial annual quota of 1,285 mt dw and establish a SCS commercial annual quota of 1,760 mt dw.

This alternative would maintain the 1997 quota levels for LCS and SCS sharks, pending new stock assessments. Once each stock assessment is complete, NMFS would proceed with the appropriate rulemaking action to ensure the stocks and the fisheries are conserved.

Ecological impacts

This alternative would maintain the LCS and SCS quotas at 1997 levels, contrary from those established in the HMS FMP. The basis for maintaining the 1997 LCS quota instead of implementing that established in the HMS FMP is not only the terms of the settlement agreement but also the peer reviews themselves. Of the four NRC reviews, only Dr. Tricas supported

further reductions. The other reviewers felt that NMFS should wait for more reliable data before comparing quota reductions and other restrictions; that the data indicate that LCS abundance seems to be stabilizing so that a further delay would not likely cause any harm while NMFS conducts a stock assessment; or, that alternatives to reduce fishing mortality other than quota reductions would be preferable but only after more analyses.

The CIE reviews generally supported additional reductions, although not necessarily the reductions established in the HMS FMP. One of the CIE reviewers states that ~~A~~While I would agree with a general conclusion that the analyses support the need for reductions in catches for the [LCS] aggregate, I think the conclusions related to individual species are not warranted[@] (Haist, 2001). The other CIE reviewers also state that the conclusions for further reductions in the catch of sandbar and blacktip sharks are not supported by the analytical results and that it is too early to tell if previous management measures have worked. Thus, none of the CIE reviewers agreed with the conclusions that led to the specific quota levels for ridgeback and non-ridgeback LCS in the HMS FMP.

Given the comments of the specific reviewers, NMFS concludes that it is premature to implement the LCS quotas established in the HMS FMP. The 1996 LCS SEW found that the 1997 quota level should maintain the LCS stocks until a rebuilding plan can be implemented. Thus, NMFS feels it is appropriate to maintain the 1997 LCS quota while waiting for the results of the 2002 LCS SEW and subsequent peer review.

Regarding the SCS quota, the quota established in the HMS FMP was precautionary in nature and increased the largest amount landed by shark fishermen by 10 percent pending a new stock assessment. The HMS FMP quota was not established using the modeling results of the 1998 LCS SEW. Rather, this quota was established using catch data presented at the 1998 LCS SEW. Due to the injunction and later the settlement agreement, this quota was not implemented. At this time, shark fishermen still have not landed either the lower HMS FMP quota or the higher 1997 quota. Therefore, it is unlikely that maintaining the higher quota would have any impact on the stock in the near term.

Social and Economic impacts

This alternative would have few, if any, social or economic impacts because it maintains the LCS and SCS quotas that have been in effect since April 1997.

Conclusion

This alternative is appropriate. While the higher quota level for LCS exceeds the level determined to be sustainable in the 1998 LCS SEW, the majority of both NRC and CIE reviewers felt that the modeling techniques used in the 1998 LCS SEW were not appropriate and that quota reductions may not have been appropriate. The LCS quota level in this alternative is the level that the 1996 LCS SEW determined would maintain the stock until a rebuilding plan could be implemented. Thus, maintaining this LCS quota should continue to maintain the LCS stock pending the new stock assessment. Additionally, the SCS quota established in the HMS FMP was precautionary in nature and was designed, in part, to prevent fishermen from

overfishing SCS until a new stock assessment could be conducted. As fishermen have not approached even the lower HMS FMP quota and a new stock assessment is expected in early 2002, maintaining the 1997 quota in the interim should not cause any irreparable harm to the SCS stocks.

Alternative 2 (Preferred action):

Suspend the regulation on the ridgeback LCS minimum size; suspend the regulation on counting dead discards and state landings after Federal closures against Federal quotas; suspend the regulation on season-specific quota adjustments for LCS and SCS; establish a regulation that adjusts the LCS or SCS quota based on the previous season's landings; and maintain the regulation on season-specific quota adjustments for pelagic sharks.

This alternative would maintain most of the commercial shark management measures until the new stock assessments are complete. The settlement agreement does not specifically prevent NMFS from implementing these measures. However, it does mention that the next stock assessment should give recommendations regarding a landings quota and how dead discards and state landings should be accounted. This alternative also adjusts the regulations regarding LCS and SCS semiannual quota adjustments.

Ecological impacts

Most of the reviewers, both CIE and NRC, agreed with size limits and species-specific management in general. However, only one reviewer explicitly agreed with the measures in the HMS FMP. That same reviewer was the only one to mention counting dead discards. Dr. Trumble says on page 5: "Regulations prohibiting filleting at sea and enhancing species identification (1997), and separating ridgeback from non-ridgeback, setting minimum size for ridgeback LCS, and counting dead discards against the quota (1999) are appropriate regardless of the quota or bag limit. Generally, the other reviewers felt that NMFS should wait for more reliable data before comparing options; supported species-specific management but did not mention size limits; felt that size and seasonal limitations may be preferable to quota reductions or should at least be evaluated; or would like NMFS to evaluate the impacts of size limits with catch limits before moving forward. Given these comments and comments suggesting these measures should be analyzed in conjunction with the quota alternatives, NMFS does not feel it is appropriate to implement a minimum size on ridgeback LCS until the 2002 SEW has a chance to compare and evaluate the impacts of size limits against other management options."

In the HMS FMP, NMFS established a regulation that would count all dead shark discards and state landings after a Federal closure against the quota. This measure was to ensure that any additional fishing mortality was accounted. SOFA *et al.* believe that this additional mortality is already considered when establishing the quota because it is included in the data. However, NMFS has generally received recommendations to reduce fishing mortality by a certain percentage, not in terms of a strict quota levels. If NMFS were to implement the measure that counts dead discards and state landings after a Federal closure against the quota, because this measure was not implemented before, this measure would not have any impact on fishermen (except as an incentive to avoid discards) until next year (the 2002 dead discards and state landings would be taken off the 2003 quota). Additionally, the settlement agreement explicitly

notes that the 2002 LCS SEW should recommend a landings quota and consider options for counting dead discards. Thus, it is likely that by 2003, NMFS will receive recommendations from the SEW on how to handle dead discards and state landings in regard to the quota. NMFS feels it is appropriate to wait for the recommendations from the SEW before implementing this or similar measures.

Similarly, in the HMS FMP, NMFS established a regulation that would count season specific quota overages or underages against the same season the following year. For example, if the LCS quota was exceeded in the first season, that overage would reduce the quota available for the first season the following year. Before the HMS FMP, LCS overages/underages in the first season were counted against the second season but LCS overages/underages in the second season were not counted against the following first season. Because of the injunction and subsequent settlement agreement, the HMS FMP measure was never fully implemented in the shark fisheries. For LCS and SCS, NMFS feels it is appropriate to wait on this measure until after the 2002 stock assessments because accounting methods may change from one year to the next in these fisheries as a result of the upcoming stock assessments. However, to ensure that fishing mortality does not increase, that fishermen have an opportunity to catch the quota, and that quota overages and underages in the second season are accounted for, NMFS will adjust the regulations in this rulemaking so that quota overages and underages in one season will be accounted for in the following season. For example, if the LCS quota was exceeded in the second season, that overage will reduce the quota available in the first season of the following year.

Quota adjustments for pelagic sharks are a different matter. To ensure that fishermen have an incentive to release blue sharks alive, any overage in the blue shark quota is counted against the pelagic shark quota. It is possible that in some years the blue shark quota could reduce the pelagic shark quota substantially. In those cases, it would be appropriate to add an underage from the same season of the previous year to the pelagic shark quota to ensure the availability of a pelagic shark quota to make sure that NMFS does not inadvertently increase discards of all pelagic sharks.

Social and Economic impacts

This alternative would have few, if any, social or economic impacts because it essentially maintains these regulations that have been in place since 1997 for LCS and SCS and since 2000 for pelagic sharks. In the case of LCS and SCS quota adjustments, the benefits (having underharvests in the second season be added to the first season of the next year) balances any costs (having overharvests in the second season be taken from the first season of the next year) because fishermen would be fishing from the same quota level throughout the year.

Conclusion

While some of the reviewers agreed with the idea of minimum sizes and counting dead discards against the quota, only one reviewer specifically agreed with the measures in the HMS FMP. Thus, NMFS would prefer having the 2002 SEW re-examine these measures before they are implemented. Once the stock assessments are complete, NMFS would proceed with the

appropriate rulemaking action to ensure the stocks and their fisheries are conserved.

Alternative 3 (Preferred action; status quo):

Maintain the recreational retention limit of one shark per vessel per trip with a minimum size of 137 cm (54") fork length plus one Atlantic sharpnose shark per person per trip with no minimum size.

This alternative would maintain the recreational retention limit pending new stock assessments. Under the settlement agreement, NMFS has no obligation to change the recreational management measures.

Ecological impacts

The 1996 LCS SEW recommended that fishing mortality on LCS should be reduced by 50 percent. Accordingly, in 1997 NMFS reduced the recreational retention limit from four LCS and pelagic sharks, combined, per trip five SCS per trip, and an additional allowance of two Atlantic sharpnose per person per trip to two sharks of any species per trip, with an exception of two Atlantic sharpnose per person per trip. However, recreational LCS landings decreased by only 12 percent and, sandbar and blacktip sharks landings increased by 64 and 2 percent, respectively. Based on this information and modeling in the 1998 LCS SEW, NMFS reduced the recreational retention limit to one shark of any species longer than 4.5 feet fork length per trip, with an exception for one Atlantic sharpnose per person per trip. According to numbers reported in the 2001 SAFE report and in the stock evaluation update (Cortes, 2000), in 1999, total recreational numbers were reduced by almost 50 percent compared to 1996 numbers (177.9 thousand fish compared to 323.6 thousand fish). Thus, the current regulation succeeded in reducing fishing mortality by the 50 percent recommended by the 1996 SEW.

Only two reviewers mentioned recreational fishing in their reviews. Dr. Tricas states that ~~A~~the sport fishery appears to have a very significant impact on the shark populations and should be more heavily regulated to assist in the recovery of stocks to [maximum sustainable yield].[@] Dr. Hale states that ~~A~~The recommendations could be considered from the perspective of improving existing management of LCS fisheries without undue penalty to the recreational or commercial fisheries.[@] Later, Dr. Hale describes other alternatives, including no take in the recreational fishery, that could achieve the 50 percent reduction from 1995 quota levels.

Additionally, as noted in the HMS FMP, the minimum size could help reduce concern over the misidentification of juvenile LCS and other shark species by recreational fishermen.

Thus, because the reviewers were not explicit regarding recreational measures, because the current recreational limits were designed, in part, to achieve the 50 percent reduction that the 1997 regulations did not, and because a court recently upheld the recreational retention limit stating they were consistent with the Magnuson-Stevens Act, NMFS feels it is appropriate at this time to maintain these measures pending new stock assessments.

Social and Economic impacts

This alternative would have few, if any, social or economic impacts because it maintains the regulations that have been in place since the implementation of the HMS FMP.

Conclusion

While this measure was implemented in the HMS FMP based in part on the modeling of the 1998 LCS SEW, NMFS feels it is still appropriate because the measures implemented in 1997 did not achieve the 50 percent decrease that was expected. These measures will ensure that recreational landings do not increase more than the models of the 1996 LCS SEW indicated was appropriate.

Alternative 4 (Not Selected):

Establish a LCS commercial annual quota of 620 mt dw and 196 mt dw for ridgeback and non-ridgeback sharks, respectively, and establish a SCS commercial annual quota of 359 mt dw.

This alternative would decrease the LCS and SCS quotas, consistent with the HMS FMP, pending a new stock assessment. These quota levels are contrary to the quota levels agreed to in the settlement agreement.

Ecological impacts

As described under alternative 1 above, not only are these quotas contrary to the settlement agreement, the majority of the reviewers did not feel that quota reductions for LCS or SCS were appropriate given the data and their concerns regarding the projections from the 1998 LCS SEW models. One reviewer felt that LCS stocks were stable enough that a delay while the appropriate analyses are conducted would not cause irreparable harm. Another reviewer felt that not enough time had passed to see if any previous management measures had worked. Thus, NMFS does not feel it is appropriate to implement any measure that would reduce the LCS quota until a new stock assessment is performed.

Also, as described under alternative 1 above, the SCS quota level in the HMS FMP was precautionary in nature. This quota has never been reached. Therefore, NMFS does not feel SCS stocks would be harmed while a new stock assessment is conducted and a proposed and final rule is implemented. NMFS expects the new stock assessment to be completed in early 2002.

Social and Economic impacts

As described in the HMS FMP, the quota level for LCS could force many individual shark fishermen out of business, could have large economic impacts on the fishery as a whole, and could have large social impacts if many fishermen from the same communities are forced out of business. The SCS quota is not expected to have any economic or social impacts because this quota has not yet been reached.

Conclusion

Decreasing the LCS and SCS quotas to levels established in the HMS FMP is contrary to the settlement agreement and may not be appropriate given the results of the independent peer review and the recommendations of the 1996 LCS SEW.

Alternative 5 (Not Selected):

Implement the regulations on ridgeback LCS minimum size, counting dead discards and state landings after Federal closures against Federal quotas, and season-specific quota adjustments for LCS and SCS.

This alternative would implement other more restrictive non-quota measures, consistent with the HMS FMP, that some of the reviewers found to be appropriate.

Ecological impacts

As noted in Alternative 2, above, some of the reviewers agreed with the idea of minimum sizes and counting dead discards, in general. Only one review, out of seven, specifically agreed with the measures adopted in the HMS FMP. Generally, both NMFS and the reviewers feel that protecting smaller sharks, either through minimum sizes or through seasonal closures, will help sustain and rebuild shark stocks. Some of the reviewers, however, felt that the effect of possible minimum sizes on shark stocks should be evaluated with potential changes in quota levels, effort changes, or other regulations.

In order to maintain Atlantic shark stocks, NMFS has to ensure that all fishing mortality is accounted for during the stock assessment and that fishing mortality does not increase because of dead discards and state landings of sharks after a Federal closure. The 2002 LCS SEW will recommend a landings quota and methods to account for dead discards. Once this type of fishing mortality is adequately accounted for, sustaining these fisheries will be easier. However, within the next year, counting dead discards and state landings will not have any impact of the stocks given the one year time delay to collect data, and in 2003, NMFS should be able to use the recommendations from the SEW to account for this fishing mortality. Thus, this alternative will not have any impact of the shark stocks in the near term.

The season-specific quota adjustments adopted in the HMS FMP would have few ecological impacts other than ensuring that quota overages and underages are accounted adequately in order to maintain the appropriate level of fishing mortality. As described in Alternative 2 above, other methods of adjusting the seasonal quotas could be applied.

Social and Economic impacts

As described in the HMS FMP, a ridgeback LCS minimum size could have a large economic impact by forcing fishermen to fish farther offshore thus increasing the amount of fuel needed and by forcing fishermen to discard some of their catch thus potentially increasing the length of the trip and therefore grocery and ice expenses. However, it is also possible that some of the increased costs could be offset if fishermen receive a better price per pound for the larger fish caught. These impacts could also affect communities, especially shark dependent communities.

Counting dead discards and state landings after a Federal closure against the Federal quotas could also have a large economic impact. If shark fishermen are unable to avoid discarding large amounts of sharks or if state fisheries begin to land large number of sharks, it is possible that the entire Federal quota could be taken before the beginning of the following season opening. If this happens, shark fishermen would be forced out of business. Once again, this could affect communities that are dependent on shark fishing.

As a whole, season-specific quota adjustments should have few economic or social impacts. In general, this alternative was implemented to ensure that fishermen who generally fish in one shark season only would be rewarded or punished for how they fished the past year. Thus, fishermen who were unable to land their entire quota (because of an early closure) would be able to land the rest of that quota the following year. However, the fishery as a whole will still be able to land its entire quota regardless of how underages and overages are accounted for.

Conclusion

The settlement agreement does not specifically prohibit NMFS from implementing these other management measures however, NMFS feels that given the results of the peer reviews pertaining to the science and the recent disputed issues between the industry and the agency, that it is more appropriate at this time to have the new LCS and SCS SEW re-examine these issues. In addition, NMFS will re-examine the season-specific adjustment regulation during the next rulemaking.

Alternative 6 (not selected):

Establish a recreational bag limit of two sharks per vessel per trip plus two Atlantic sharpnose sharks per trip.

This alternative would relax the recreational retention limit, consistent with pre-HMS FMP regulations, in the recreational fishery.

Ecological impacts

In 1996, the LCS SEW recommended that fishing mortality for LCS be reduced by 50 percent in order to maintain the stock until a rebuilding plan could be implemented. To meet this goal, in 1997, NMFS reduced the recreational retention limit by approximately 50 percent. As noted in Alternative 3 above, the 1997 bag limit (this alternative) did not reduce fishing mortality by recreational shark fishermen by 50 percent. For LCS in general, fishing mortality was reduced by 12 percent. For sandbar and blacktip sharks (two of the more popular LCS caught), recreational landings actually increased. Thus, NMFS believes it is likely that re-implementing this measure could, once again, increase recreational shark landings contrary to the recommendations of the 1996 SEW. Additionally, as noted in Alternative 3 above, none of the reviewers suggested increasing the recreational retention limit.

Social and Economic impacts

It is possible that increasing the recreational retention limit would increase participation in the

recreational fishery, thereby increasing the revenue of charter/headboat owners and related industries. However, as noted in the HMS FMP, most anglers before the HMS FMP were already operating within the current retention limit. Additionally, as noted in the 2001 SAFE Report, few charter/headboats actually target sharks. Thus, it is unlikely that increasing the recreational retention limit will have a large economic impact on individuals, the fishery, or related communities.

Conclusion

This alternative is not appropriate at this time. Increasing the recreational bag limit may result in an increase of fishing mortality, contrary to the results of the 1996 SEW.

Alternative 7 (not selected):

Maintain the recreational retention limit of one shark per vessel per trip plus one Atlantic sharpnose shark per person per trip and suspend any minimum size.

This alternative would maintain the current recreational retention limit but would suspend the current minimum size limit.

Ecological impacts

NMFS continues to be concerned over the misidentification of juvenile LCS as SCS. If the minimum size were suspended, it is possible that fishermen who catch sharks could catch a number of SCS and report them as LCS. This could impact future stock assessments. NMFS is currently working with Rhode Island's Sea Grant to design an HMS species identification guide. This guide is expected to be available in mid-2002.

Additionally, as noted in Alternative 3 above, the current regulations have successfully reduced recreational fishing mortality by almost 50 percent. If the minimum size were suspended, it is possible that recreational fishing mortality could increase contrary to the recommendations of the 1996 SEW.

Social and Economic impacts

Removing the minimum size would likely have few economic or social impacts because most recreational fishermen do not target sharks and those fishermen or tournaments that do target sharks are often trying to catch sharks larger than the current minimum size limit.

Conclusion

Pending the next stock assessment, it is appropriate to maintain the current recreational regulations. Removing the minimum size could increase fishing mortality.

6.0 REGULATORY IMPACT REVIEW

The Regulatory Impact Review (RIR) is conducted to comply with Executive Order 12866 (E.O. 12866) and provides analyses of the economic benefits and costs of each alternative to the nation and the fishery as a whole. This section assesses the impacts of the alternatives presented in this document.

Certain elements required in an RIR are also required as part of an environmental assessment (EA). Thus, this section should be considered only part of the RIR. The rest of the RIR can be found throughout this document. For example, Section 1 of this document describes the need for the action and the objectives of the regulations and Section 5 describes the alternatives considered and their ecological, social, and economic impacts.

Because this rule was not available for public comment before implementation, it is exempt from the regulations of the Regulatory Flexibility Act. However, because the preferred actions described in this environmental assessment do not change the management measures that have been in effect and because this emergency rule is of limited duration, NMFS does not expect the rule associated with this environmental assessment to have any significant economic impacts on affected entities.

6.1 Analyses of management measures

Sections 3.4.1.3, 3.4.2.3, 7.6, and 7.7 of the HMS FMP describe the economic benefits and costs to the nation and individual fishermen of a number shark management alternatives. Because these analyses used the 1997 quotas as the status quo and because the quotas and fishery operations have not changed (except for the implementation of limited access), the analyses conducted in the HMS FMP are relevant with respect to this action. Please see the above referenced sections for more economic information regarding the commercial shark fishery and the impact of the alternatives considered in this document.

6.1.1 Number of permit holders

As of October 2001, approximately 390 fishermen had been issued an incidental commercial shark limited access permit and 252 had been issued a directed commercial shark limited access permit. The addresses of these permit holders range from Texas through Maine with over half (51 percent) of the permit holders located in Florida. Additionally, as of October 2001, there were 249 dealers permitted to buy sharks. Dealer addresses also range from Texas through Maine with 39 percent located in Florida. At this time, NMFS does not have recreational permit for shark. However, in 2001, NMFS implemented a regulation requiring all charter/headboats fishing for any highly migratory species (HMS) to have an HMS charter/headboat permit. As of October 2001, there were 3,260 HMS charter/headboat permit holders. Not all of these permit holders target sharks, but it is likely that many encounter sharks when they target other species. NMFS believes that all permit holders, their employees, and employees of related businesses (e.g. bait shops, tackle shops, processors, exporters) could experience a range of impacts because of the preferred action described in this document. These impacts are described below and the

HMS FMP.

6.1.2 Possible benefits of the management measures

The preferred action described in this EA will achieve all of the objectives described in Section 1 of this document. As far as fishermen and fishing communities are concerned, the preferred action will not have any additional benefits in the short-term because the preferred action maintains the status quo until the new stock assessments are complete and the LCS stock assessment is peer reviewed. In the long-term, any benefits or costs will depend on the results the new assessments, cannot be assessed at this time, and are beyond the scope of this rulemaking. Any long-term benefits may include rebuilding of LCS stocks to optimum levels; increased commercial quotas and associated increased fishing opportunities and revenues; and decreased costs associated with derby fisheries and extended fishery closures. NMFS hopes that the review of the science used to support fishery regulations and its subsequent use promotes confidence in the management process.

Of all the alternatives, only the recreational alternatives (other than the preferred action) would have any economic benefits. These alternatives would benefit anglers who actually target sharks. However, NMFS data indicate that few anglers actually target sharks. While implementing a commercial minimum size for ridgeback LCS may increase the ex-vessel price per pound, it is possible that the economic costs would exceed this benefit. Therefore, it is likely that any economic benefit from these alternatives would be small, particularly in the short-term.

6.1.3 Possible costs of the management measures

The three preferred actions are expected to have few, if any, economic costs because they have been in place, either through a court injunction or through the emergency rule based on the settlement agreement, since April 1997 for commercial LCS and SCS measures, 1999 for the recreational measures, and 2000 for the commercial pelagic shark measures. Additionally, the recreational alternatives considered but not finalized would have few if any economic costs because they represent a lifting of the current restrictions.

All of the alternatives considered but not finalized that implement the commercial measures of the HMS FMP would have economic costs and may force fishermen out of business. In the short-term, the final commercial actions will have minimal costs to fishermen and the fishing community because the preferred action is the status quo. In the long-term, the costs of all the alternatives to fishermen and the fishing communities will depend on the results of the 2002 stock assessments.

6.2 Conclusions

The preferred actions described in this EA have been determined to be not significant for the purposes of E.O. 12866. The preferred action does not change the current quotas, retention limits, or operations of the LCS, SCS, or pelagic shark fisheries for the duration of this emergency rule and therefore will not change the benefits or costs obtained from the fishery. The reviewers of the 1998 LCS SEW found the scientific techniques and the best available

science at that time to be inappropriate. Thus, NMFS believes that using a combination of the peer reviews, the available data, and modeling techniques used in the 1996 SEW to be appropriate to use, pending new stock assessments. In general, NMFS believes that having the peer review of the 1998 LCS SEW has helped to move shark management forward and has been more beneficial to the nation as a whole than a protracted litigation. Additionally, because neither the 1997 nor the 1999 SCS quota has been reached, NMFS believes that a new SCS assessment and the movement of shark management out of the courts is more beneficial to the nation and the fishing industry than the continuation of litigation. A summary of the expected economic benefits and costs of each alternative considered in this environmental assessment can be found in Table 6.2.

Table 6.2 Summary of the economic benefits and costs for each alternative considered

Management measure	Economic benefits	Economic costs
Alternative 1 Preferred action	Status quo. Minimal.	Status quo. Minimal.
Alternative 2 Preferred action	Status quo. Minimal.	Status quo. Minimal.
Alternative 3 Preferred action	Status quo. Minimal.	Status quo. Minimal.
Alternative 4	None in the short-term.	Substantial. Fishermen may be forced out of business. This could further impact shark dealers and communities that rely on shark fishing.
Alternative 5	Larger fish may be worth more per pound than smaller fish.	Costs per trip may increase as fishermen are forced to fish farther offshore (increase in fuel) and discard fish that are below the size limit (additional time needed on the vessel to catch the commercial trip limit).
Alternative 6	Businesses related to recreational fishing may notice a slight increase in revenue due to increase in number of sharks landed.	Minimal.
Alternative 7	Businesses related to recreational fishing may notice a slight increase in revenue due to increase in number of sharks landed.	Minimal.

7.0 COMMUNITY PROFILES

Section 102(2)(a) of the National Environmental Policy Act (NEPA) requires Federal agencies to consider the interactions of natural and human environments by using a systematic, interdisciplinary approach which will ensure the integrated use of the natural and social sciences . . . in planning and decision-making.@ The Magnuson-Stevens Act also requires consideration of social impacts. Federal agencies should address the aesthetic, historic, cultural, economic, social, or health effects which may be direct, indirect, or cumulative. Consideration of the social impacts associated with fishery management measures is a growing concern as fisheries

experience variable participation and/or declines in stocks.

The following towns were identified during the HMS FMP development and are analyzed for social impacts in this action due to the importance of large and small coastal shark fishing to the community: Wanchese, NC; Madeira Beach, FL; Panama City, FL; and Dulac, LA. These communities are discussed in detail in chapter 9 of the HMS FMP.

The impacts of this action are expected to be minor in all of these communities in the short-term. This action re-establishes 1997 commercial LCS and SCS quota levels and catch accounting/monitoring procedures, pending independent review. Because 1997 commercial quotas and catch accounting/monitoring procedures are currently the status quo due to the court injunction, no changes in social impacts are expected due to this action. In the long-term, however, negative social impacts may be experienced if reductions in commercial quota or restrictions on fishery operation procedures are necessary to rebuild LCS and prevent overfishing of SCS.

8.0 FINDING OF NO SIGNIFICANT ENVIRONMENTAL IMPACT

The Highly Migratory Species Management Division of the Office of Sustainable Fisheries submits the attached Environmental Assessment (EA) for the Atlantic shark fisheries for Secretarial review under the procedures of the Magnuson-Stevens Act. This EA was developed as an integrated document that included a Regulatory Impact Review. Copies of the Environmental Assessment and Regulatory Impact Review are available at the following address:

Highly Migratory Species Management Division SF1
National Marine Fisheries Service
1315 East West Highway
Silver Spring, MD 20910

or

<http://www.nmfs.noaa.gov/sfa/hmspg.html>

The document finalizes the following actions:

- \$ Establish a LCS commercial annual quota of 1,285 mt dw and establish a SCS commercial annual quota of 1,760 mt dw.
- \$ Suspend the regulation on the ridgeback LCS minimum size; suspend the regulation on counting dead discards and state landings after Federal closures against Federal quotas; suspend the regulation on season-specific quota adjustments for LCS and SCS; establish a regulation that adjusts the LCS or SCS quota based on the previous season's landings; and maintain the regulation on season-specific quota adjustments for pelagic sharks.
- \$ Maintain the recreational retention limit of one shark per vessel per trip with a minimum size of 137 cm (54") fork length plus one Atlantic sharpnose shark per person per trip with no minimum size.

The EA considers information contained in the Environmental Impact Statement associated with the HMS FMP, in the 2001 SAFE report, in the seven peer reviews of the 1998 LCS SEW, and in the 1996 and 1998 SEW reports. All information used is herein incorporated by reference.

8.1 Summary of Effects and Rationale

8.1.1 Commercial LCS and SCS quota levels

Maintaining the LCS and SCS quotas at 1997 levels is preferred to alternatives that would lower quota levels consistent with the HMS FMP (taking no action) or place the quotas at the higher 1996 quota levels. While NMFS would not need to take any action to maintain the lower HMS FMP quota levels, these quota levels have never been implemented due originally to a court-ordered injunction and later to an emergency rule implementing a court-approved settlement agreement.

Implementing any quota level other than the 1997 quota levels for SCS and LCS would be contrary to the terms of the settlement agreement. Additionally, the majority of peer reviewers felt that the results of the stock assessment, upon which the HMS FMP LCS quota levels were based, were inappropriate. Furthermore, the peer reviewers generally felt that the results of the stock assessment did not necessarily show that the LCS quota should have been reduced (page 14). The 1996 SEW felt that the 1997 LCS quota level was appropriate to maintain the stock pending a rebuilding plan. Thus, NMFS feels that given the results of the peer reviews and the 1996 SEW that it is appropriate to implement the 1997 LCS quota level pending the next stock assessment (expected in early 2002).

While the 1997 SCS quota is higher than the HMS FMP quota, fishermen have not reached either quota level and therefore, maintaining the 1997 quota level should not cause any harm in the short term. This quota level can be changed based on the next stock assessment (expected in early 2002).

Fishermen should experience little, if any, social or economic impacts as a result of this action because these quota levels have effectively been in place since 1997.

8.1.2 Other non-quota commercial management measures

As with the quota levels, these management measures have not been in place due to either the court injunction or the emergency rule implementing the settlement agreement. However, unlike the quota levels, the settlement agreement does not require NMFS to maintain these management actions now that the peer reviews are complete.

NMFS believes that suspending the regulation on the ridgeback LCS minimum size, suspending the regulation on counting dead discards and state landings after Federal closures against Federal quotas, suspending the regulation on season-specific quota adjustments for LCS and SCS, and maintaining the regulation on season-specific quota adjustments for pelagic sharks is appropriate given the results of the peer reviews (page 16), the short duration of this emergency rule (360

days maximum), the fact that the next stock assessment will consider some of these management options (page 16), and the fact that some of these management actions will not have any impact on the fishery until 2003 (page 16).

8.1.3 Recreational retention limit

Maintaining the current recreational retention limit is preferred over the other options considered (changing back to the 1997 regulations or maintaining the bag limit and removing the size limit). The 1996 SEW recommended that fishing mortality on LCS be reduced by 50 percent in order to maintain the stock until a rebuilding plan could be implemented. The 1997 regulations did not accomplish this while landings data from 1999 indicate that the current regulations did. Thus, changing the regulations could result in fishing mortality greater than that recommended by the 1996 SEW or the peer reviewers. Additionally, removing the size limit could cause SCS to be reported landed as LCS. This could disrupt any future stock assessment results for both SCS and LCS.

8.2 Evaluation of Significance

Section 1508.27(b) of the implementing regulations for the Council of Environmental Quality identifies 10 concepts for evaluation of significance. A discussion of these 10 concepts is below.

8.2.1 Beneficial and adverse impacts

Implementation of these regulations would have beneficial impacts and some adverse impacts. NMFS has determined that the balance of the effects will be beneficial. The benefits of implementing the 1997 quota levels for SCS and LCS pending new stock assessments outweighs the negative economic impact of maintaining the HMS FMP quota levels and its effects on the commercial fishery. Similarly, in the short-term, the benefits of maintaining the status quo with regard to non-quota management measures outweigh any benefits of the alternative. Additionally, the environmental benefits of maintaining the current recreational retention limit in the short-term outweigh any economic benefits to anglers by relaxing the limit.

8.2.2 Public safety

The regulations will benefit public safety. The preferred actions essentially maintain status quo pending new stock assessments. Thus, fishermen are already familiar with the regulations and will not have to learn new regulations to comply with them. Additionally, the regulations do not dictate where or how fishermen will fish for Atlantic sharks.

8.2.3 Unique geographic areas

These regulations affect fishermen who hold commercial shark limited access permits fishing in state waters, the U.S. EEZ, or the high seas, or anglers who are fishing for sharks in the U.S. EEZ. As such, these actions will not affect park lands, prime farmlands, wetlands, or wild and scenic rivers because those resources are onshore or nearshore, not in areas where shark fishermen will be fishing. If historic or cultural resources or sites exist or are designated in areas

with shark fishermen could potentially fish, it is unlikely that shark vessels would damage these sites as they would likely avoid them to prevent any gear loss or damage.

8.2.4 Controversial effects on the human environment

NMFS considers these regulations to be controversial because of the litigation issues regarding Atlantic sharks since 1997. The commercial management measures have been in place due to a court injunction and later a court-approved settlement agreement. The commercial quota management measure is part of the settlement agreement. However, environmental organizations have recently sued NMFS regarding the settlement agreement. A motion to dismiss is in front of the court but the court has not yet responded. Additionally, a recreational fishing organization sued NMFS over the 1999 regulations; that court recently ruled in favor of NMFS in that lawsuit.

NMFS has determined that moving forward with the terms of the settlement agreement benefits all fishermen and constituents by moving shark management forward and promoting public confidence in the science that results in management actions.

8.2.5 Uncertain, unknown, or unique risks

There are no effects on the human environment that are highly uncertain or that involve unique or unknown risks. These regulations have all been effective for at least a year.

8.2.6 Precedence

The regulations do not establish new precedents. These regulations have all been effective for at least a year.

8.2.7 Cumulative Impacts

The regulations do not have any additional impacts because they have all been effective for at least a year.

8.2.8 Adverse effects on resources

The effects of these regulations regarding shark fishing would not apply to any sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or cause loss or destruction of significant scientific, cultural, or historical resources. Should such structures be located in areas where shark fishermen could potentially fish, shark fishermen would already avoid those areas to avoid gear loss or damage.

8.2.9 Endangered resources

A formal Section 7 consultation by NMFS=Office of Protected Resources was completed on June 14, 2001. This biological opinion concluded that bottom longline, shark drift gillnet, and rod and reel would not have an impact on threatened or endangered species. It also concluded

that pelagic longline gear could jeopardize the existence of leatherback and loggerhead sea turtles. NMFS has implemented an emergency rule that implements the Reasonable and Prudent Alternatives in the biological opinion. As these regulations do not change management measures that were in place at the time of issuance for the biological opinion, this action is not expected to have an impact on threatened or endangered species.

8.2.10 Other environmental laws

The effects of these regulations, which regulate shark fishing for commercial fishermen anywhere in the Atlantic and recreational fishermen in the U.S. EEZ, would not have an impact on State or local regulations and would not negatively impact other laws applicable to the EEZ. NMFS determined that, in the context of the fishery as a whole, these regulations would not have an adverse impact on essential fish habitat and that no further consultation was necessary.

8.3 Conclusion

For the reasons stated above, implementation of a LCS commercial annual quota of 1,285 mt dw and a SCS commercial annual quota of 1,760 mt dw; suspension of the regulation on the ridgeback LCS minimum size; suspension of the regulation on counting dead discards and state landings after Federal closures against Federal quotas; suspension of the regulation on season-specific quota adjustments for LCS and SCS; establishment of a regulation that adjusts the LCS or SCS quota based on the previous season's landings; and maintenance of the regulations on season-specific quota adjustments for pelagic sharks and the recreational retention limit of one shark per vessel per trip with a minimum size of 137 cm (54") fork length plus one Atlantic sharpnose shark per person per trip with no minimum size would not significantly affect the quality of the human environment, and preparation of an environmental impact statement on the preferred actions is not required by Section 102(2)(c) of NEPA or its implementing regulations.

Approved: Rebecca Lent for
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